

Comment No.	Section	Page	Comment
1	Figures	New Figure Request	Please add a figure that shows the shoreline types (as presented in Figure 4-1 "Shoreline Land / Human Use Characterization" of the Reconnaissance Survey Report, dated April 2015) along with 2014 clam-sediment, Sediment Quality Triad (SQT) sediment, and 2015 Baseline Human Health Risk Assessment (BHHRA) sediment sampling locations (collected during the SQT program).
2	Section 2.0 Sampling Design	Page 1 of 5 (PDF page 9)	Section 2.0 states that deviations from the SQT Quality Assurance Project Plan (QAPP) are described in Section 2.4; however, there is no Section 2.4 provided in the report. Please revise the text or insert a cross-reference to the SQT Field Report.
3	Section 2.3.2 Bioaccumulation Study	Page 2 of 5 (PDF page 10)	Section 2.3.2 should state whether the worms were depurated or not, and, if so, for how long before preparing for shipment to the analytical laboratory. The ASTM (2010) guidance (E-1688) referenced in the QAPP (Tierra, 2015) recommends not depurating organisms if the data are to be used to estimate exposures to benthivores and higher trophic levels; however, depuration would be appropriate for deriving sediment to worm tissue uptake factors. A Baseline Ecological Risk Assessment (BERA) typically considers incidental sediment ingestion as a separate pathway when quantifying contaminant exposures, obviating the concern about using depurated tissue samples.
4	Section 2.3.3.1 Hydrophobic Organic Compounds	Page 3 of 5 (PDF page 11) Top paragraph on page	Performance reference compounds were only added to PCB and PAH passive samplers to correct porewater concentrations for equilibrium conditions. The PCDD/F and pesticides values are potentially biased low since they were not impregnated. Please revise the following sentence in Section 2.3.3.1: "...each passive sampler was cleaned and impregnated with a set of performance reference compounds that allow the assessment of the extent of equilibrium achieved during the contact period."
5	Section 3.5.2 Benthic Index of Biotic Integrity (B-IBI)	Page 6 of 6 (PDF page 19) Last paragraph on page	It is premature to offer conclusions regarding the B-IBI scoring results until Phase III sampling results are available and biological metrics have been evaluated from the perspective of the more relevant stratification approach. Consequently, please remove the conclusion that the NBSA is "non-impacted" and rather specify that B-IBI scores will be evaluated further once the Phase III surface sediment sampling results are available.

6	Table 2-1	PDF page 23	Please refer to the comment on Table 2 of the SQT Field Report. Surface water was not a targeted sample matrix (i.e., surface water field samples were not collected for lab analysis). Instead surface water was collected and used in the field facility for the shipment of passive samplers (so they would not dry out). Please remove surface water from Table 2-1 or add a footnote stating that the SQT program did not include collection of surface water field samples.
6	Table 3-18	PDF pgs. 135-136	Benthic Community Metric values in Table 3-18 should be checked for accuracy. Calculation errors were detected for Pielou's Evenness (e.g., Locations 158 and 155) and Swartz's Dominance (e.g., Locations 145 and 152). In addition, minor rounding errors in approximately 25-30 percent of the Total Mean Density values presented in Appendix C were observed. Please check calculations, review rules for significant figures, and explain procedures in table footnotes.
7	Figure 2-1	PDF page 149	Please refer to the comment on Figure 3 of the SQT Field Report. Similar to SQT QAPP Figure 1, please uniquely identify the sampling locations on Figure 2-1 to denote the different suites of analyses planned for the collected samples (e.g., sediment for chemical analysis only was collected from the BHHRA locations).
8	Figures 3-30 and 3-31	PDF pgs. 179-180	It appears that Figure 3-30 and Figure 3-31 present similar information (i.e., Figure 3-30 shows dominant primary taxonomic group for the entire bay, while Figure 3-31 shows the data by geographical zone). If this observation is correct, please use a similar format for the two graphics and the same legend and color-coding per taxonomic group. For example, a fourth bar could be added to Figure 3-31 for "All Zones Combined."
9	Appendix B	General comment: All contaminants (PCDD/F, PCB, PAH, and Pesticides)	Once porewater calculations are finalized, please add final porewater concentrations to the compiled electronic database as a calculated value, and consider marking the current extract concentrations as "not reportable" with a comment that the final calculated porewater concentrations supersede the extract concentrations.
10	Appendix B	General comment: All contaminants (PCDD/F, PCB, PAH, and Pesticides)	Please clarify whether the Log K_{PE-W} values were corrected for temperature and/or salinity (as appropriate). Log K_{PE-W} values from the literature assume freshwater conditions and an ambient temperature of 25 degrees Celsius.

11	Appendix B PAH Spreadsheet	General comment on PAH calculations	Please clarify what compounds are included in "C1-naphthalenes" other than those reported for 1-methyl-naphthalene and 2-methyl-naphthalene.
12	Appendix B PCB spreadsheet	General comment on PCB calculations	<p>a. For several co-eluting PCB congeners, fewer K_{ow} values are listed than there are co-eluting PCB congeners reported. Please review and revise (as appropriate), or provide rationale for the discrepancy.</p> <p>b. There appears to be a major discrepancy in the Log K_{PE-W} values reported by Fernandez et. al. (2014) for PCB congeners and the values used by Tierra/UMBC. Please review and revise (as appropriate), or provide rationale for discrepancy. It is recommended that Tierra/UMBC refer to values provided by Lohmann (2012) and correlations provided therein.</p>
13	Appendix B Pesticide spreadsheet	General comment on Pesticide calculations	Tierra/UMBC used a linear Log K_{ow} - Log K_{PE-W} correlation for pesticides, even though there is strong evidence that this correlation may not be appropriate for such a diverse set of compounds. Please refer to Lohmann (2012) for better correlations with aqueous solubility at saturation.
14	Appendix B: Pesticide spreadsheet	General comment on Pesticide calculations	Please consider reporting pesticide concentrations in ng/mL to be consistent with results for the other compounds.
15	Appendix B: PCDD/F and PCB Spreadsheet and UMBC Memo	UMBC Memo, first to last sentence of second paragraph (PDF Page 578)	The Tierra/UMBC memorandum states: "PE passive samplers loaded with performance reference compounds (PRCs) were used to determine the freely dissolved porewater concentrations of PCBs, PAHs, and pesticides." It does not appear that equilibrium corrections were considered for the pesticide compounds, even though several pesticides share a molecular weight similar to hexa-PCB or hepta-PCB congeners. Please consider correcting pesticide porewater concentrations for equilibrium, similar to the PCB calculations.
16	Appendix B: PCDD/F and PCB Spreadsheet and UMBC Memo	UMBC Memo, last sentence of second paragraph (PDF Page 578)	The Tierra/UMBC memorandum states: "POM passive samplers (without PRCs) were used to measure freely dissolved concentrations of dioxins and furans." Please add a comment that PCDD/F porewater concentrations are potentially biased low, since they were derived from the POM passive sampler that was not impregnated with PRCs to assess equilibrium.

17	Appendix B: PCDD/F and PCB Spreadsheet and UMBC Memo	UMBC Memo, Item 1, first sentence (PDF page 578)	There appears to be an inconsistency between Tierra's reported concentrations based on a final extract volume of 20 uL for PCDD/F, and UMBC's calculations that assume a final volume of 1 mL. According to Tierra's electronic database, the PCB and PCDD/F final extract volumes were 20 uL; only PAHs had a final extract volume of 1 mL. Please clarify or correct and revise as appropriate.
18	Appendix B: PCB spreadsheet and UMBC Memo	UMBC Memo, Item 2 (PDF page 579)	PRCs were included and dissipated in all but eight sediment samples to more than 80% of their original concentration. For the eight sediment samples where the PRCs had less than 80% loss from the passive sampler media, a PRC correction was performed according to SOP L40; however, it appears that the equilibrium correction was applied to all PCB congeners in these eight samples, including congeners that were greater than 80% equilibrated. Please revise calculation accordingly (or provide rationale for the inconsistency).
19	Appendix B: PAH Spreadsheet and UMBC Memo	UMBC Memo, Item 2, last paragraph (PDF page 579)	The Tierra/UMBC memorandum states (in Item 2, last paragraph) that the PAH PRCs were not detected above the laboratory reporting limit (RL). The paragraph continues to read that if the laboratory detection limit (DL) value is used to calculate the PRC loss, the losses are less than 80%, which does not provide information necessary for the PRC correction. Please clarify this apparently contradictory statement. Were the RL and DL so elevated that assuming a PRC concentration equal to these values still did not equate to an 80% or more PRC dissipation? Why not use the RL to assess percent loss rather than the DL? Is there a typo in the statements in the text?

20	Appendix B: PCB spreadsheet and UMBC Memo	UMBC Memo, Item 2, third paragraph (PDF page 579)	<p>Below are examples of some discrepancies observed between the Log K_{PE-W} values calculated based on Log K_{OW} and the Log K_{PE-W} values reported in the Tierra/UMBC spreadsheet. Since the spreadsheet does not contain formulas to describe how the values were derived, please confirm the accuracy of the Log K_{PE-W} values. It is possible that the discrepancy is associated with the averaging of the K_{PE} values for co-eluting PCB congeners (as stated in the memorandum on Page 2, Item 2, Third Paragraph). Examples include:</p> <table border="1"> <thead> <tr> <th>Congener</th><th>Log K_{OW}</th><th>Log K_{PE-W} based on correlation $1.18 * \text{Log } K_{OW} - 1.26$</th><th>Reported Log K_{PE-W} in Spreadsheet</th></tr> </thead> <tbody> <tr> <td>Co-elute: Hexachlorobiphenyls; 2,2',3,3',5,6'-(PCB 135)/ 2,2',3,5,5',6-(PCB 151)</td><td>6.64</td><td></td><td></td></tr> <tr> <td>Hexachlorobiphenyl; 2,2',3,3',4,5'-(PCB 130)</td><td>6.80</td><td>6.76</td><td>6.50</td></tr> <tr> <td>Hexachlorobiphenyl; 2,2',3,3',4,6'-(PCB 132)</td><td>6.58</td><td>6.50</td><td>6.83</td></tr> <tr> <td>Hexachlorobiphenyl; 2,2',3,3',5,5'-(PCB 133)</td><td>6.86</td><td>6.83</td><td>6.47</td></tr> <tr> <td>Hexachlorobiphenyl; 2,2',3,3',5,6-(PCB 134)</td><td>6.55</td><td>6.47</td><td>6.58</td></tr> <tr> <td>PCB183+185</td><td>7.11/7.2</td><td>7.18</td><td>7.24</td></tr> <tr> <td>Co-elute: Heptachlorobiphenyls; 2,2',3,4,4',5,5'-(PCB 180)/ 2,3,3',4',5,5',6-(PCB 193)</td><td>7.36/7.52</td><td>7.52</td><td>6.68</td></tr> </tbody> </table>	Congener	Log K_{OW}	Log K_{PE-W} based on correlation $1.18 * \text{Log } K_{OW} - 1.26$	Reported Log K_{PE-W} in Spreadsheet	Co-elute: Hexachlorobiphenyls; 2,2',3,3',5,6'-(PCB 135)/ 2,2',3,5,5',6-(PCB 151)	6.64			Hexachlorobiphenyl; 2,2',3,3',4,5'-(PCB 130)	6.80	6.76	6.50	Hexachlorobiphenyl; 2,2',3,3',4,6'-(PCB 132)	6.58	6.50	6.83	Hexachlorobiphenyl; 2,2',3,3',5,5'-(PCB 133)	6.86	6.83	6.47	Hexachlorobiphenyl; 2,2',3,3',5,6-(PCB 134)	6.55	6.47	6.58	PCB183+185	7.11/7.2	7.18	7.24	Co-elute: Heptachlorobiphenyls; 2,2',3,4,4',5,5'-(PCB 180)/ 2,3,3',4',5,5',6-(PCB 193)	7.36/7.52	7.52	6.68
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21	Appendix B: PCDD/F and PCB Spreadsheet and UMBC Memo	UMBC Memo, Item 3 (PDF page 580)	<p>Porewater calculations use K_{POM-W} values as published by Cornelissen et. al. (2008); however, two transcription errors were observed for OCDF and 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin. Please correct and revise calculations accordingly (or provide rationale to clarify why a different K_{POM-W} value was applied).</p>																																

22	Appendix B: PCDD/F and PCB Spreadsheet and UMBC Memo	UMBC Memo, Item 3 (PDF page 580)	Porewater calculations use K_{PE-w} values as published by Fernandez et. al. (2014); however, two transcription errors were observed for 2,4-DDE and 4,4-DDT. Please correct and revise calculations accordingly (or provide rationale to clarify why a different K_{PE-w} value was applied).
23	Appendix B: PAH Spreadsheet and UMBC Memo	UMBC Memo, Item 3 (PDF page 580)	<p>Calculations use K_{PE-w} values as published by Ghosh et. al. (2014) for parent PAH compounds and a correlation by Choi et. al. (2013) for alkylated PAHs. Please note the following discrepancies with these references:</p> <ol style="list-style-type: none"> 1. For many alkylated PAHs (e.g., C2, C3, C4-naphthalenes, C1-fluorenes, and C2-chrysene) the log K_{ow} values do not match the values reported by Choi using the same software, and the derived log K_{PE-w} values do not match the values measured by Choi. In some cases, the log K_{ow} values used seem to be the mean values of those reported by Choi, in other cases not. Please provide a better rationale and explanation on how the log K_{ow} values were derived for alkylated PAHs (i.e., if they were averaged), and why the derived values differ from those measured and reported by Choi for the same alkylated compounds. 2. Calculations for alkylated PAH compounds use correlations published in Ghosh et. al. (2014); however, in the spreadsheets provided, no correlation of Log K_{PE-w}-Log K_{ow} is used (instead values are just entered). Please provide correlation calculations.
24	Appendix B: Pesticide spreadsheet and UMBC Memo	UMBC Memo, Item 3 (PDF page 580)	<p>According to the Tierra/UMBC memorandum (Item 3), the K_{PE-w} references are from either Ghosh et. al. (2014) for PCBs and parent PAH, Fernandez et. al. (2014) for DDT compounds, or correlations by Fernandez et. al. (2014) for other compounds. Fernandez et. al. (2014) only reports K_{PE-w} for DDTs and PCBs, and gives no correlations for other pesticides (particularly oxychlordane). Please clarify the source of the K_{PE-w} values. [It was observed that the memorandum also references Fernandez et. al. (2009) in the "Literature Cited" – did the text intend to cite a different reference?]</p>

25	Appendix B: Pesticide spreadsheet and UMBC Memo	UMBC Memo, Item 4, first sentence and Figure (PDF pgs. 581-582)	<p>a. Pesticide blank concentrations are only given as “totals,” which are not useful for assessing which compounds might have associated blank contamination. Please coordinate with the laboratory to obtain and report blank concentrations for individual pesticide compounds.</p> <p>b. Please provide a legend and notes for the “Total Pesticides” figure to clarify its purpose (apparently to show that total pesticide contamination in blank samples was negligible compared to detected total pesticide concentrations).</p>
26	Appendix C Normandeau Memo	Quality Assurance/Quality Control (PDF page 587)	The 19 January 2016 memo states that “The results were considered sufficient if 90.0 percent or more of both the taxa and specimens were removed during the initial effort.” Samples 144B and 157C were below this criterion. Were these two samples re-counted? It is not clear from the memorandum whether any corrective action was implemented – please clarify.
27	Appendix D Normandeau Memo	Analysis and Quality Control, Item A (PDF page 630)	Section A of the 28 June 2016 memo states that drying was confirmed by a 5 percent or less difference between Dry Weight No. 1 and Dry Weight No. 2. Please confirm that the table on PDF page 630 (Hardcopy page 2) represents the minimum and maximum percent difference measured for the entire program. If so, please provide the number of measurements (or sample size) that the summary table represents.
28	Appendix D Normandeau Memo	Analysis and Quality Control, Item B (PDF page 631)	Section B of the 28 June 2016 memo states that the acceptance criteria for the blank tray was 0.0009 grams. Please identify the source of this criterion.
29	Appendix E	General Comment	Please define all qualifiers presented in Appendix E.
30	Appendix E, Table E-3, “Metals in Porewater”	PDF page 767	Please explain why metals in porewater are marked “NA” (not analyzed) in Table E-3 “Porewater Analytical Results” for Location NB03SED-POR155. There is no discussion of metals completeness in Appendix H; in fact, porewater analytical completeness for metals is marked 100 percent on PDF page 801 in Appendix H.
31	Appendix F and Appendix G	General Comment on Appendix F and Appendix G	Please confirm completeness of Appendix F “Laboratory Data Reports” and Appendix G “Data Verification/Validation Reports” since these appendices were placeholders (no content) in the July 29, 2016 (Revision 0) deliverable of the SQT Data Report.

32	Appendix H	General Comment	Please discuss “Percent Lipid” and “Percent Moisture” data verification in Appendix H (per SQT QAPP Worksheet 36).
33	Appendix H	General Comment for Sections 2.0, 3.0, and 4.0	The tables in Section 3.0 summarize the reasons that data were qualified for non-compliance with regard to precision, accuracy/bias contamination, overall accuracy/bias, and representativeness. It is unclear which of the major and/or minor data quality issues resulted in sensitivity issues (as discussed in Section 2.4) and more importantly, what major and/or minor data quality issues resulted in rejected data (as discussed in Section 2.7). Please provide further discussion to summarize the underlying causes of sensitivity concerns and rejected data. The reviewer noticed that a discussion of rejected data was included in the conclusions (Section 4.0); this information should also be provided in the appropriate locations in Section 3.0.
34	Appendix H	General Comment on Tables in Section 2.0	<p>(1) To prevent confusion, fill all of the empty cells with a symbol to denote that validation was completed but no data were qualified (instead of a blank cell).</p> <p>(2) Revise the definition for the “x” symbol to include the data indicator. For example, “data qualified <u>due to precision</u> during validation for this analytical group” for the table on PDF page 790.</p> <p>(3) Please confirm the accuracy of the summary tables in Section 2.0 with the information in Section 3.0. For example, PDF page 821 indicates that DOC field blank contamination was present, but the corresponding table in Section 2.0 on is not marked accordingly. Another example is that PDF page 815 indicates that methylmercury data only had a precision-related qualification, but the corresponding tables in Section 2.0 suggest that holding time violations were also an issue for methylmercury analyses.</p>

35	Appendix H	General Comment on Appendix H Section 3.0	The following comment addresses Pesticides but also applies to other analytical groups. The quality issue described as “Non-compliant project specific surrogate recovery, as specified by USEPA Region 2” is classified as both a <u>major</u> data quality issue on PDF page 807 and a <u>minor</u> data quality issue on PDF page 808. Please explain the difference. (Section 4.0 states that 95 sample results for pesticides were rejected due to surrogate recovery, which matches the number of results listed in the pesticides “major data quality issue” tables on PDF page 807.) The reviewer concluded that a “major data quality issue” resulted in data rejection while a “minor data quality issue” resulted in J-flags. If this assumption is true, then please revise text to be clearer, since there is no discussion of rejected data in Section 3.0.
36	Appendix H Section 1.0, Introduction	PDF page 787 Second paragraph	When listing the number of samples validated, please add parentheses to separate the field samples from the site-specific quality control samples. For example, the SQT program included 30 porewater samples plus associated field duplicates and media blanks (not 32 porewater samples as presented on page 1 of Appendix H; the extra two samples are site-specific quality control samples).
37	Appendix H Section 2.1, Precision	PDF page 788 Second paragraph	<ol style="list-style-type: none">1. The discussion on precision and the difference between “co-located samples” and “field duplicate samples” needs to be clarified. For porewater passive samplers, the use of the phrase “co-located samples” is correct because two samplers were deployed into the same chamber. In contrast, sediment field duplicate samples represent two aliquots of material taken from the same composited and homogenized sediment material and shipped ‘blind’ to the laboratory.2. For the bioaccumulation worm tissue, please clarify if there was sufficient mass for a separate field duplicate sample or if only a laboratory replicate was performed. According to the SQT QAPP Worksheet 12, only laboratory replicates were required to assess precision of the tissue matrix due to limited mass; however, Table E-2 on PDF page 744 indicates that a field duplicate for bioaccumulation worm tissue was generated.

38	Appendix H Section 2.4, Sensitivity	PDF page 794	Please add a note that the QAPP's PQLs were set equal to the laboratory achievable quantitation limit, and any dilution or adjustment in initial extraction mass (or final extract volume) by the laboratory would cause the quantitation limit to be higher than the achievable quantitation limit.
39	Appendix H Section 2.5, Representativeness	PDF page 796	Representativeness includes an examination of holding time as well as sample handling and storage. Please confirm that the main reason that data were qualified for representativeness is holding time violations, as per the table header on PDF page 796. If this is correct, please add a sentence to Section 2.5 stating that data were qualified due to holding time violations.
40	Appendix H Section 2.7, Field and Analytical Completeness	PDF page 798	The overall analytical completeness is 96.4 percent. (1) Please explain how the information in the smaller tables on PDF pages 799-802 yielded an overall analytical completeness of 96.4 percent, and (2) please note specifically if the laboratory completed the analysis but the data were subsequently rejected, causing the overall analytical completeness to be 96.4 percent.
41	Appendix H Bioaccumulation Testing	PDF page 824	<ol style="list-style-type: none">1. Please add a cross-reference to Appendix A in the sub-section "Bioaccumulation Testing."2. Please add a comment on precision (or refer to discussion in Appendix A); please correct the text to note that the program collected 8 field samples and 1 field duplicate (not 9 field samples).
42	Appendix I	General Comment	Please add a cover page to Appendix I containing the document source for "Table 6 Thresholds used to score each metric of the NY-NJ Harbor B-IBI."